

conditions attending its formation were identical with those noted for the preceding month, *i. e.*, the intermingling of warm, humid air from the ocean to the southward, or from over the Gulf Stream, and the chilled air attending the ice-fields; the former being drawn to this locality by the cyclonic movement

of the atmosphere within the eastern or southern quadrants of areas of low barometric pressure. Of the eleven dates for which dense fog was reported in this locality, nine show the presence of the centres of areas of low pressure to the westward and two to the northwestward of the fog banks.

TEMPERATURE OF THE AIR (expressed in degrees, Fahrenheit).

The distribution of mean temperature over the United States and Canada for April, 1887, is exhibited on chart ii by the dotted isothermal lines. In the table of miscellaneous data are given the monthly mean temperatures, with the departures from the normal, for the various stations of the Signal Service, and in the figures above the geographical districts, the average temperature and departure for each district. The normal for any district may be found by adding the departure to the current mean for the district when the departure is below the normal, and subtracting when above. On chart iv the departures from the normal are illustrated by lines connecting stations of normal or equal abnormal values.

The mean temperature of the month is very nearly normal in all districts; the greatest departures occur in the central Mississippi and lower Missouri valleys, where the temperature has been, at different stations, from 2° 0 to 5° 9 warmer than the average April. In the west Gulf states and Texas it has been about 1° 0 above the normal; over the lower lake region, Canada, New England, and along the Atlantic coast it has been slightly below the normal, the average departure being 1° 5 and the greatest 3° 8 at Albany, N. Y. In the northern and middle Pacific coast regions the temperature of the month has been 0° 5 to 2° 4 below the normal, except at Sacramento, Cal., where the departure is 1° 3 above. On the 2d very low temperatures, for the season, prevailed over the south Atlantic states, east Gulf states, and Florida, producing in some sections light frosts. In the Lake region the minimum temperature of the month occurred at all stations on the 5th. The high temperatures of the 13th in the Ohio and central Mississippi valleys are noteworthy features of the meteorology of the month.

The following are some of the most marked departures from the normal temperature at Signal Service stations:

Above normal.		Below normal.	
Yankton, Dak.....	5.9	Albany, N. Y.....	3.8
Saint Louis, Mo.....	4.7	Mount Washington, N. H.....	3.0
Omaha, Nebr.....	4.5	Norfolk, Va.....	3.0
Fort Smith, Ark.....	3.8	Portland, Me.....	2.8
Fort Buford, Dak.....	3.3	Cedar Keys, Fla.....	2.7
Leavenworth, Kans.....	3.3	Key West Fla.....	2.7
Bismarck, Dak.....	2.8	Lynchburg, Va.....	2.5

DEVIATIONS FROM NORMAL TEMPERATURES.

In the table below are given, for certain stations, as reported by voluntary observers, the normal temperatures of April for a series of years, the mean temperature for April, 1887, and the departures from the normal:

Station.	County.	Normal temperature for April.	Number of years.	Mean temperature for April, 1887.	Departure.
<i>Arkansas.</i>					
Lead Hill.....	Boone.....	60.7	5	63.9	+ 3.2
<i>California.</i>					
Sacramento.....	Sacramento.....	59.2	21	57.3	- 1.9
<i>Connecticut.</i>					
Middletown *.....	Middlesex.....	45.4	29	44.3	- 1.1
New Haven *.....	New Haven.....	46.8	101	44.4	- 2.4
Waterbury *.....	New Haven.....	46.6	12	43.0	- 3.6
<i>Dakota.</i>					
Webster.....	Day.....	44.8	4	45.3	+ 0.5
<i>Florida.</i>					
Archer.....	Alachua.....	65.8	4	62.2	- 3.6
<i>Illinois.</i>					
Collinsville.....	Madison.....	51.2	8	55.9	+ 4.7
Mattoon.....	Coles.....	51.6	7	53.0	+ 1.4
Peoria.....	Peoria.....	52.2	31	57.3	+ 5.1
Sycamore.....	De Kalb.....	46.5	6	48.2	+ 1.7

Deviations from normal temperatures—Continued.

Station.	County.	Normal temperature for April.	Number of years.	Mean temperature for April, 1887.	Departure.
<i>Indiana.</i>					
Lafayette.....	Tippecanoe.....	50.0	8	50.6	+ 0.6
Logansport.....	Cass.....	53.2	33	53.1	- 0.1
Vevay.....	Switzerland.....	54.8	21	53.9	- 0.9
<i>Iowa.</i>					
Creco.....	Howard.....	43.9	10	46.3	+ 2.4
Monticello.....	Jones.....	48.1	34	49.6	+ 1.5
Muscataine.....	Muscataine.....	48.5	49	50.8	+ 2.3
<i>Kansas.</i>					
Independence.....	Montgomery.....	57.1	16	59.8	+ 2.7
Wellington.....	Sumner.....	55.6	9	58.1	+ 2.5
<i>Louisiana.</i>					
Grand Coteau.....	Saint Landry.....	67.1	5	69.1	+ 2.0
<i>Maine.</i>					
Belfast *.....	Waldo.....	43.6	26	39.1	- 4.5
Cornish.....	York.....	41.8	30	38.9	- 2.9
Orono *.....	Penobscot.....	39.9	19	37.3	- 2.6
<i>Maryland.</i>					
Cumberland.....	Alleghany.....	51.5	15	49.2	- 2.3
Fallston.....	Harford.....	49.7	16	47.5	- 2.2
<i>Massachusetts.</i>					
Amherst *.....	Hampshire.....	45.2	50	44.9	- 0.3
Cambridge *.....	Middlesex.....	44.2	65	43.3	- 0.9
Fitchburg *.....	Worcester.....	42.4	31	40.7	- 1.7
New Bedford *.....	Bristol.....	44.5	75	43.1	- 1.4
Somerset.....	Bristol.....	45.4	17	45.3	- 0.1
Springfield *.....	Hampden.....	46.0	20	45.2	- 0.8
Taunton *.....	Bristol.....	46.5	16	43.6	- 2.9
Williamstown *.....	Berkshire.....	41.9	33	39.5	- 2.4
<i>Nevada.</i>					
Carson City.....	Ormsby.....	47.8	8	48.1	+ 0.3
<i>New Brunswick.</i>					
Saint John *.....	Saint John.....	37.4	27	37.0	- 0.4
<i>New Hampshire.</i>					
Concord *.....	Merrimack.....	44.6	19	42.4	- 2.2
Hanover *.....	Grafton.....	41.3	27	36.6	- 4.7
<i>New Jersey.</i>					
Dover.....	Morris.....	43.7	5	44.5	+ 0.8
South Orange.....	Essex.....	48.3	17	46.8	- 1.5
<i>New York.</i>					
Factoryville.....	Tioga.....	43.5	5	42.9	- 0.6
North Volney.....	Oswego.....	41.3	20	40.6	- 0.7
Palermo.....	Oswego.....	42.5	33	38.9	- 3.6
<i>Ohio.</i>					
Wauseon.....	Fulton.....	46.4	17	46.2	- 0.2
<i>Pennsylvania.</i>					
Wilkesbarre.....	Luzerne.....	48.2	9	44.9	- 3.3
<i>South Carolina.</i>					
Stateburg.....	Sumter.....	62.0	7	61.4	- 0.6
<i>Texas.</i>					
New Ulm.....	Austin.....	68.3	15	68.9	+ 0.6
<i>Vermont.</i>					
Lunenburg *.....	Essex.....	37.9	38	35.9	- 2.0
Newport *.....	Orleans.....	39.7	13	36.2	- 3.5
Stratford.....	Orange.....	40.8	13	37.6	- 3.2
<i>Virginia.</i>					
Bird's Nest.....	Northampton.....	54.8	16	52.7	- 2.1
Dale Enterprise.....	Rockingham.....	51.7	7	54.3	+ 2.6
Variety Mills.....	Nelson.....	54.1	10	51.2	- 2.9
Wytheville.....	Wythe.....	52.1	23	52.0	- 0.1
<i>West Virginia.</i>					
Helvetia.....	Randolph.....	48.5	11	47.7	- 0.8

* From the "Bulletin of the New England Meteorological Society."

The following notes on temperature are from the reports of voluntary observers:

Illinois.—Mattoon, Coles Co.: during the past eight years the warmest April occurred in 1880, mean temperature, 58° 0; the coldest in 1881 and 1885, mean, 47° 0. [The observer states that all temperature records at this station previous to April, 1887, are 2° 0 too high for readings between 26° and 39°, and 3° 0 too high from 50° to 80°.]

Indiana.—Logansport, Cass Co.: in the past thirty-three years the extreme April temperatures are 99° 0, in 1870, and 8° 0, in 1865.

Iowa.—Monticello, Jones Co.: during the past thirty-four years the extreme April temperatures are 94° 0, in 1865, and 12° 0, in 1874; the highest and lowest April means are 56° 0, in 1855, and 38° 0, in 1857.

Kansas.—Wellington, Sumner Co.: during the past nine years the warmest April occurred in 1880, mean temperature, 59° 6; the coldest in 1884, mean, 50° 7; the extremes of April in that time are 95° 0, in 1887, and 15° 0, in 1881.

Maryland.—Cumberland, Alleghany Co.: the temperature of April in the past fifteen years is shown in the following table:

Year.	Highest.	Lowest.	Mean.	Year.	Highest.	Lowest.	Mean.
1873.....	82.0	35.0	57.0	1882.....	79.0	26.0	50.5
1874.....	66.0	24.0	45.0	1883.....	72.0	28.0	48.0
1875.....	67.0	24.0	47.0	1884.....	70.0	30.0	49.5
1876.....	50.0	32.0	49.0	1885.....	80.0	28.0	50.2
1877.....	76.0	32.0	57.0	1886.....	80.0	33.0	55.0
1878.....	80.0	34.0	55.0	1887.....	82.0	26.0	49.2
1879.....	80.0	23.0	50.0				
1880.....	82.0	24.0	53.0	Average.....	77.4	28.2	51.5
1881.....	80.0	24.0	57.6				

Massachusetts.—Worcester, Worcester Co.: the temperature of April, 1887, was a few degrees below the mean for the past fifty years. The extremes of April temperature for the past half century are 12° and 86°, the mean, 44° 3.

New York.—Palermo, Oswego Co.: the highest April mean temperature of the past thirty-three years, 50° 0, occurred in 1878; the lowest, 32° 4, in 1874.

South Carolina.—Stateburg, Sumter Co.: the extreme April temperatures during the past seven years both occurred in the current month, highest, 87° 0, on the 12th, lowest, 29° 5, on the 2d; the highest mean temperature, 64° 6, occurred in 1882; the lowest mean, 60° 1, in 1884.

Vermont.—Strafford, Orange Co.: during the past thirteen years the warmest April was in 1886, mean temperature, 48° 3; the coldest in 1875, mean, 35° 7.

Virginia.—Dale Enterprise, Rockingham Co.: in the past seven years the highest April mean temperature, 59° 1, occurred in 1886; the lowest mean, 42° 4, in 1883.

RANGES OF TEMPERATURE.

The monthly, and the greatest and least daily, ranges of temperature, are given in the table of miscellaneous meteorological data.

The following are some of the greatest and least monthly ranges at Signal Service stations:

Greatest.		Least.	
	°		°
Saint Vincent, Minn.....	87.1	Tatoosh Island, Wash	18.5
Fort Totten, Dak.....	53.2	Key West, Fla.....	22.8
Moorhead, Minn.....	82.3	Port Angeles, Wash	25.6
Huron, Dak.....	78.3	Astoria, Oregon.....	26.4
Fort Yates, Dak.....	77.2	Eureka, Cal.....	28.2
Fort Buford, Dak.....	76.2	Galveston, Tex.....	30.2

FROSTS.

Frosts occurred in the states and territories, as follows:

Alabama.—Livingston, 1st, 6th; Montgomery, 6th.

Arizona.—1st, 9th to 20th, 22d to 26th.

Arkansas.—Lead Hill and Fort Smith, 1st, 5th, 24th; Little Rock, 5th, 24th.

California.—Keeler, 8th, 12th; Oroville, 11th; San Francisco, 11th, 12th; Fort Bidwell, 18th; Eureka, 21st; Sacramento, 30th.

Colorado.—1st to 4th, 11th to 26th.

Connecticut.—3d, 6th to 9th, 14th, 18th.

Dakota.—1st, 3d to 7th, 10th, 11th, 13th to 26th.

District of Columbia.—7th, 14th, 20th, 21st.

Florida.—Jacksonville, 2d.

Georgia.—Savannah, Augusta, and Quitman, 2d; Atlanta, 2d, 5th; Athens, Milledgeville, and Forsyth, 2d, 6th.

Idaho.—3d, 12th, 18th, 19th, 22d, 24th, 25th.

Illinois.—1st to 8th, 16th, 18th, 19th, 21st to 27th.

Indiana.—1st, 2d, 5th to 9th, 19th, 21st, 24th, 26th, 30th.

Indian Territory.—Fort Sill, 23d.

Iowa.—1st to 8th, 16th to 19th, 21st to 27th, 29th.

Kansas.—1st, 3d, 4th, 5th, 15th to 20th, 22d to 25th.

Kentucky.—1st, 2d, 5th, 6th, 8th, 18th, 19th, 22d, 24th, 30th.

Louisiana.—Liberty Hill, 1st, 5th; Shreveport, 5th.

Maine.—2d, 25th.

Maryland.—6th to 9th, 19th, 20th, 25th.

Massachusetts.—1st, 2d, 3d, 5th to 9th, 13th, 14th, 15th, 18th, 19th, 21st, 22d, 25th.

Michigan.—1st, 2d, 4th to 9th, 11th, 12th, 13th, 15th to 27th, 29th, 30th.

Minnesota.—3d to 11th, 16th to 21st, 23d to 26th.

Missouri.—Springfield, 4th, 5th, 18th, 23d, 24th; Central College, 24th, 25th.

Montana.—1st, 3d, 4th, 5th, 12th to 20th, 22d to 26th.

Table of comparative maximum and minimum temperatures for April.

State or Territory.	Station.	For 1887.		Since establishment of station.			
		Max.	Min.	Max.	Year.	Min.	Year.
Alabama.....	Mobile.....	85.8	41.0	90.0	1881, 1883	32.0	1881
Do.....	Montgomery.....	87.1	39.7	90.0	1880	30.0	1881
Arizona.....	Prescott.....	78.6	23.0	86.0	1879	13.0	1878
Do.....	Fort Apache.....	81.9	27.0	89.0	1879	15.0	1883
Arkansas.....	Fort Smith.....	91.3	30.0	88.5	1883	30.1	1886
Do.....	Little Rock.....	89.8	33.5	94.0	1880	28.2	1886
California.....	San Francisco.....	78.5	43.7	81.0	1875	40.0	1875
Do.....	San Diego.....	79.6	44.4	87.0	1876	39.0	1875
Colorado.....	Denver.....	82.5	20.5	83.0	1874	4.0	1876
Do.....	Pike's Peak.....	37.5	6.2	39.0	1876	21.0	1875
Connecticut.....	New Haven.....	80.0	23.0	83.0	1885	16.0	1874
Do.....	New London.....	79.4	23.6	77.9	1885	19.0	1874
Dakota.....	Fort Buford.....	87.8	11.6	92.0	1881	7.0	1880
Do.....	Yankton.....	90.1	18.9	89.0	1874	3.0	1881
District of Columbia.....	Washington City.....	83.9	28.0	90.0	1872	22.5	1875
Florida.....	Jacksonville.....	88.7	37.6	91.0	1874, 1880	37.0	1881
Do.....	Key West.....	84.0	61.2	91.0	1881	61.0	1873, 1881
Georgia.....	Atlanta.....	88.1	36.3	86.0	1880	25.0	1881
Do.....	Savannah.....	89.0	35.5	89.0	1873	33.0	1881
Idaho.....	Boise City.....	86.3	22.4	80.0	1879	17.5	1883
Illinois.....	Chicago.....	87.0	32.9	89.0	1872	24.0	1875
Do.....	Chicago.....	82.2	19.1	83.0	1873	17.0	1875, 1879, 1881
Indiana.....	Indianapolis.....	85.0	22.4	85.3	1883	19.0	1875
Indian Territory.....	Fort Sill.....	95.0	35.0	96.0	1880	25.0	1881
Iowa.....	Dubuque.....	82.6	15.8	84.0	1879	13.8	1886
Do.....	Des Moines.....	86.8	18.1	89.0	1883	11.0	1881
Kansas.....	Dodge City.....	91.1	23.9	92.0	1880	13.0	1881
Do.....	Leavenworth.....	87.2	26.4	89.0	1880	13.0	1881
Kentucky.....	Louisville.....	87.0	30.3	88.5	1883	21.0	1875
Louisiana.....	New Orleans.....	86.8	48.5	86.0	1882	38.0	1881
Do.....	Shreveport.....	96.2	38.9	93.0	1880, 1882	32.0	1881
Maine.....	Eastport.....	66.2	20.5	71.3	1886	2.0	1874
Do.....	Portland.....	70.2	21.5	78.0	1881	14.0	1874
Maryland.....	Baltimore.....	85.0	29.5	87.8	1886	23.5	1875
Massachusetts.....	Boston.....	79.6	23.0	85.0	1872	11.0	1874
Michigan.....	Marquette.....	81.5	9.2	81.0	1877	3.0	1875
Do.....	Grand Haven.....	72.8	15.5	80.0	1883	9.0	1874
Minnesota.....	Saint Vincent.....	83.5	3.6	82.2	1886	14.4	1885
Do.....	Saint Paul.....	84.2	13.8	82.0	1879, 1882	7.0	1874
Mississippi.....	Vicksburg.....	92.0	42.6	91.4	1885	31.0	1881
Missouri.....	Saint Louis.....	86.7	31.6	87.5	1883	22.0	1875
Montana.....	Fort Assinaboine.....	78.6	24.1	81.0	1881	7.0	1881
Do.....	Helena.....	74.0	21.7	73.0	1881	6.0	1881
Nebraska.....	North Platte.....	93.2	18.0	92.0	1880	12.0	1875
Do.....	Omaha.....	88.0	23.4	89.0	1880	6.0	1881
Nevada.....	Winnemucca.....	81.1	21.8	79.0	1881	17.0	1883
New Hampshire.....	Mount Washington.....	42.1	8.3	56.5	1885	18.0	1874
New Jersey.....	Atlantic City.....	84.0	26.6	83.4	1886	19.0	1875
New Mexico.....	Santa Fe.....	72.2	33.4	84.0	1879	11.0	1875
New York.....	Buffalo.....	65.2	19.1	82.6	1883	11.0	1881
Do.....	New York City.....	80.3	25.8	84.0	1880	20.0	1874
North Carolina.....	Charlotte.....	89.3	32.1	86.6	1886	28.0	1881
Do.....	Wilmington.....	85.7	32.9	90.0	1880	28.0	1875
Ohio.....	Cincinnati.....	84.4	27.2	85.0	1872, 1873	18.0	1875
Do.....	Sandusky.....	81.1	19.3	83.9	1885	14.0	1881
Oregon.....	Portland.....	68.9	31.2	85.0	1880	28.0	1875
Do.....	Roseburg.....	77.0	27.5	84.5	1880	29.0	1878
Pennsylvania.....	Pittsburg.....	83.8	24.0	89.2	1885	14.0	1875
Do.....	Philadelphia.....	84.2	27.8	87.0	1872	17.5	1874
Rhode Island.....	Block Island.....	66.8	25.0	69.9	1885	25.0	1881
South Carolina.....	Charleston.....	85.3	33.4	87.0	1880	32.0	1881
Tennessee.....	Knoxville.....	85.7	29.1	88.0	1872	24.0	1875, 1881
Do.....	Memphis.....	87.2	38.4	88.0	1882, 1883	27.0	1881
Texas.....	Brownsville.....	91.7	50.7	97.8	1886	43.0	1881
Do.....	Fort Elliott.....	90.2	29.0	96.0	1880	20.0	1881
Utah.....	Salt Lake City.....	80.7	27.1	83.0	1874	19.0	1875
Virginia.....	Lynchburg.....	85.4	30.9	91.5	1873	25.0	1881
Do.....	Norfolk.....	84.5	31.5	92.0	1871	27.0	1875, 1880
Washington Ter.....	Spokane Falls.....	86.2	26.1	75.0	1885	26.0	1881
Do.....	Olympia.....	67.0	27.2	82.0	1880	28.0	1880
Wisconsin.....	La Crosse.....	79.1	11.5	83.0	1879	10.0	1881
Do.....	Milwaukee.....	77.8	17.6	82.0	1871	11.6	1886
Wyoming.....	Cheyenne.....	75.6	16.0	80.0	1874	2.0	1875

Nebraska.—1st, 3d, 4th, 5th, 7th, 11th, 12th, 15th, 16th, 17th, 20th, 22d to 28th.

Nevada.—Carson City, 3d, 4th, 6th to 12th, 14th, 16th to 19th, 21st to 24th, 27th, 30th; Winnemucca, 8th, 11th, 12th, 15th, 16th, 18th, 19th, 22d.

New Hampshire.—1st, 6th to 9th, 12th to 15th, 19th, 21st, 22d, 23d, 25th.

New Jersey.—1st, 2d, 3d, 6th to 9th, 19th, 20th, 21st, 25th.

New Mexico.—Fort Stanton, 1st, 2d, 4th to 7th, 13th, 14th, 15th, 24th, 25th, 26th; Gallinas Spring, 9th, 13th, 19th.

New York.—1st to 15th, 17th to 23d, 25th to 29th.

North Carolina.—Reidsville, 1st, 2d, 3d, 6th, 20th, 21st, 26th; Wash Woods, 2d, 3d, 6th, 7th, 8th; Hanging Dog, 2d, 3d, 24th; Statesville, 2d, 6th; Weldon, 3d, 6th, 9th; Lenoir, 6; Raleigh, 20th, 21st.

Ohio.—1st, 2d, 3d, 5th to 10th, 17th to 21st, 24th to 28th.

Oregon.—1st, 3d, 4th, 8th, 10th to 18th, 20th to 22d, 25th, 30th.

Pennsylvania.—1st to 11th, 13th to 30th.

Rhode Island.—Block Island, 15th.
South Carolina.—Aiken, 1st; Spartanburg, 2d, 3d, 5th, 6th, 9th, 10th, 19th, 26th; Stateburg, 2d, 6th.
Tennessee.—1st, 2d, 4th, 5th, 6th, 19th, 24th.
Texas.—Palestine, 1st; Fort Davis, 1st, 4th, 23d.
Utah.—9th, 12th, 13th, 16th, 21st, 22d.
Vermont.—1st, 2d, 3d, 6th, 7th, 8th, 12th, 13th, 14th, 18th, 19th, 20th, 22d, 26th, 27th, 28th.
Virginia.—1st, 2d, 3d, 6th, 7th, 9th, 20th, 21st, 22d, 26th.
Washington Territory.—3d, 4th, 13th, 14th, 15th, 18th, 21st, 22d, 23d, 25th, 29th, 30th.
West Virginia.—1st, 2d, 5th, 6th, 8th, 9th, 19th, 20th, 21st, 24th, 25th.
Wisconsin.—1st to 10th, 17th, 19th to 29th.
Wyoming.—3d, 4th, 9th to 11th, 13th to 15th, 18th to 26th.

ICE.

Ice formed in the southern parts of the country as follows:
Arkansas.—Lead Hill, 1st, 5th; Little Rock, 5th.
Georgia.—Athens and Forsyth, 2d, 6th.
North Carolina.—Weldon, 3d, 6th; Lenoir, 6th.
Tennessee.—Milan, 1st; Ashwood, 1st, 2d; Nashville, 5th, 6th.
Texas.—Corsicana, 1st.

TEMPERATURE OF WATER.

The following table shows the maximum, minimum, and mean water temperature, as observed at the harbors of the several stations; the monthly range of water temperature; the average depth at which the observations were made, and the mean temperature of the air:

Temperature of water for April, 1887.

Station.	Temperature at bottom.				Mean temperature of the air at station.	Average depth of water, feet and tenths.
	Max.	Min.	Range.	Monthly mean.		
Cedar Keys, Fla.	68.9	60.0	8.9	65.8	67.3	8.1
Charleston, S. C.	68.3	53.5	14.8	62.2	62.6	36.2
Eastport, Me.	38.2	38.4	3.4	36.6	37.5	12.9
Galveston, Tex.	76.8	64.8	12.0	71.5	69.4	14.5
Key West, Fla.	86.2	70.6	15.6	78.5	74.3	20.3
New London, Conn.	46.5	36.5	10.0	41.3	45.0	11.5
New York City.	45.3	36.5	8.8	41.3	47.7	15.2
Pensacola, Fla.	76.0	63.3	12.7	69.0	67.3	17.7
Portland, Me.	42.0	34.8	7.2	38.4	40.2	16.8
Portland, Oregon	52.7	46.6	6.1	48.7	50.2	58.1

*Record for 29 days.

PRECIPITATION (expressed in inches and hundredths).

The distribution of precipitation over the United States and Canada for April, 1887, as determined from the reports of about six hundred stations, is exhibited on chart iii. In the table of miscellaneous meteorological data are given, for each Signal Service station, the total precipitation, with the departures from the normal. The figures above the several geographical districts show the average precipitation and the average excess or deficiency as compared with the normal of each district. The normal for any district may be found by adding the departure to the current mean when the departure is below normal, and subtracting when above.

The precipitation of the month over the entire country east of the Rocky Mountains is generally considerably below the normal, although there are in these districts several large areas in which an excess occurs. The more important of these areas of excess comprises the greater part of Canada, the upper lake region, southern Minnesota, southern Dakota, eastern Wyoming, eastern Colorado, and western Nebraska; the excess is small in the central and western parts of this large area, but in Nova Scotia departures as large as 3.08 in excess of the normal occur. A second area of excessive rainfall embraces the Ohio Valley, Maryland, Delaware, and northern Virginia, within which the departures vary from 0.35 at Washington City to 2.79 at Louisville, Ky. In the southeastern quarter of the country very little rain has fallen during the month, and deficiencies ranging from three to six inches occur in the southern part of the Mississippi Valley and eastern Texas. Most of the precipitation of the Gulf States fell on the 17th, 18th, 22d, and 23d, and was immediately absorbed by the dry soil. At two stations in Florida, Cedar Keys and Jacksonville, an excess of rain fell. The long drought continues in southern and eastern Texas, the rainfall at all stations in these parts of the state being less than one inch, and at several stations none fell, although the normal amount is from three to four inches. In northwestern Texas and the western part of the Indian Territory the drought was broken by several rains; the rains of the 13-14th and 17-18th were heavy and the precipitation of this region is above the normal. The depression of the 22d was accompanied in the Ohio Valley, lower lakes, and Tennessee by unusually heavy rainfall; in Tennessee the greater part of the precipitation of the month fell on this date. All stations in the plateau region and western slope of the Rocky Mountains, except San Francisco and Sacramento, Cal., show an excess of precipitation, but the departures are not large, except along the coast of Washington Territory and Oregon,

where the continuous rainfall of the month has retarded agricultural operations.

The following are some of the most marked departures from the normal precipitation at Signal Service stations:

Above normal.		Below normal.	
	Inches.		Inches.
Tatoosh Island, Wash.	4.94	Vicksburg, Miss.	6.51
Fort Elliott, Tex.	4.48	Shreveport, La.	5.58
Cedar Keys, Fla.	4.25	Little Rock, Ark.	5.39
Astoria, Oregon	3.29	Montgomery, Ala.	5.16
Louisville, Ky.	2.79	Pensacola, Fla.	4.38
Cincinnati, Ohio.	2.69	New Orleans, La.	4.27
Portland, Me.	2.02	Mobile, Ala.	4.03

DEVIATIONS FROM AVERAGE PRECIPITATION.

The following table shows, for certain stations, as reported by voluntary observers, the average precipitation for the month of April for a series of years, the precipitation for April 1887, and the departures from the average:

Station.	County.	Average precipitation for April.	Number of years.	Precipitation for April, 1887.	Departure.
		Inches.		Inches.	Inches.
<i>Arkansas.</i>					
Lead Hill	Boone	5.02	5	3.02	- 2.00
<i>California.</i>					
Sacramento	Sacramento	2.07	21	2.59	+ 0.52
<i>Connecticut.</i>					
Canton *	Hartford	3.39	26	3.10	- 0.29
Hartford *	Hartford	3.30	16	3.49	+ 0.19
Middletown *	Middlesex	3.26	29	3.00	- 0.26
Wallingford *	New Haven	3.74	30	3.19	- 0.55
<i>Dakota.</i>					
Webster	Day	4.87	4	3.94	- 0.93
<i>Florida.</i>					
Archer	Alachua	3.88	4	7.75	+ 3.87
<i>Illinois.</i>					
Collinsville	Madison	3.24	5	3.99	+ 0.75
Mattoon	Coles	4.02	7	2.93	- 1.09
Peoria	Peoria	3.11	31	1.53	- 1.58
Sycamore	De Kalb	4.02	6	1.08	- 2.94
Sandwich	De Kalb	3.55	35	0.57	- 2.98
<i>Indiana.</i>					
Lafayette	Tippecanoe	3.28	8	2.94	- 0.34
Logansport	Cass	2.65	33	2.10	- 0.55
Vevay	Switzerland	3.40	21	7.07	+ 3.67
<i>Iowa.</i>					
Cresco	Howard	2.12	15	1.94	- 0.18
Monticello	Jones	2.56	34	0.83	- 1.73
<i>Kansas.</i>					
Independence	Montgomery	4.46	15	3.23	- 1.23
Wellington	Sumner	2.81	9	3.23	+ 0.42
<i>Louisiana.</i>					
Grand Coteau	Saint Landry	5.66	5	1.77	- 3.89
<i>Maine.</i>					
Cornish	York	2.84	30	3.86	+ 1.02
Orono *	Penobscot	3.04	19	5.08	+ 2.04